



PORTLAND HARBOR RI/FS
REMEDIAL INVESTIGATION REPORT

APPENDIX A4
**CALCULATION OF WHOLE-BODY CONCENTRATIONS
FOR ROUND 3B BASS AND CARP SAMPLES**

DRAFT

DO NOT QUOTE OR CITE

This document is currently under review by US EPA and its federal, state, and tribal partners, and is subject to change in whole or in part.

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1.0 INTRODUCTION

Data for fish fillets and whole body fish were collected during Rounds 1 and 3B of the Portland Harbor RI. During Round 1, fillets were collected from different fish than were used for whole body samples, including black crappie, brown bullhead, carp, and smallmouth bass. During Round 3B, however, fillet and whole-body data were obtained using the same fish. Fillets were removed from Round 3B carp and smallmouth bass, and fillets and bodies without fillets (i.e., remaining-bodies) were composited and analyzed separately. Whole-body concentrations were calculated using the concentrations in the fillet and remaining-body samples. The Round 3B biota data report (Integral 2008) included results for the fillet and remaining-body samples, but did not provide results for the calculated whole-body concentrations. Calculated whole-body concentrations have been added to the SCRA database. Whole-body calculations used for Round 3B bass and carp are described in this appendix.

2.0 WHOLE-BODY CALCULATIONS

Whole-body concentrations were calculated by weighting the concentration in the fillets and remaining-bodies according to the fractional weight of each tissue relative to the whole fish, and summing the weighted concentrations, as follows.

The average fillet weight and remaining-body weight were calculated for each composite sample and added together to obtain the average whole-body weight. The proportion of each was then obtained by dividing the average fillet and remaining-body weights by the average whole-body weight. These values were multiplied by the respective chemical concentration and then added together to obtain the chemical concentration in the whole body, as shown in the following equation:

$$C_{wb} = \left(\frac{F_{avg}}{WB_{avg}} \times C_f \right) + \left(\frac{R_{avg}}{WB_{avg}} \times C_r \right)$$

Where:

C_{wb} = chemical concentration in whole body

F_{avg} = average fillet weight

WB_{avg} = average whole-body weight

C_f = chemical concentration in fillet only

R_{avg} = average remaining body weight

C_r = chemical concentration in remaining body only.